

March 29, 2004

Docket Clerk, US DOT Dockets
Room PL-401, Department of Transportation
4000 7th St. SW, Washington DC 20590-0001
RE: Docket No. MARAD 2004-17166

Dear Sir or Madam:

The Basel Action Network (BAN) submits these comments pursuant to the invitation of the US Maritime Administration (MARAD) and the US Department of Transportation (DOT) welcoming the public's opinion and comments on the draft Environmental Assessment on the Transfer of National Defense Reserve Fleet Vessels from the James Rivers Reserve Fleet for Disposal at Able UK Facilities, Teesside, UK (EA), 69 Fed. Reg. 9422 (Feb. 27, 2004).

BAN is gravely concerned about the lack of substantive analysis in the EA's attempt to assess the potentially significant environmental and health risks posed by the proposed export of nine "Ghost Fleet" vessels for disposal in the United Kingdom. As discussed herein, the magnitude of potentially significant environmental harm posed by the proposed export is very high. It is very alarming that MARAD has done so little to assess these potential harms in a serious and substantive way. The glaring omissions are simply unacceptable, and BAN sincerely hopes that MARAD promptly addresses these issues as it revisits the EA. Moreover, given the lack of substantive analysis, BAN would respectfully request an opportunity to provide further comment on a revised draft EA.

In light of the specific requirements of the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality's (CEQ) "Regulations for Implementing NEPA" (40 CFR §§ 1500-1508), as well as Executive Order 12114, the EA's specific deficiencies are discussed in turn below. BAN reminds MARAD that NEPA requires the agency to engage in scientific analysis of a high quality before it takes any decision in this matter. See 40 CFR § 1500.1(b).

I. The EA must provide current data on the hull conditions of the remaining nine vessels, particularly looking at the corrosion and wastage found at the waterline area, and include a full inventory of materials remaining in the vessels (see Section 3.7)

The deteriorated condition of the National Defense Reserve Fleet (NDRF) vessels has already caused several vessels to leak. The proposed project will increase the potential environmental risks of leaks in at least two major ways. First, trans-Atlantic towing will place severe and unknown stresses on weak and dilapidated hulls and tanks, increasing the existing risk of leak during the tow period. In contrast to leak remediation in the James River, timely prevention and/or remediation of a leak during oceanic transit is nearly impossible. Second, due to uncertainties surrounding the capacity of the proposed disposal facility to actually dispose of the vessels in a timely fashion, vessels further

weakened by trans-Atlantic towing may sit in U.K. territorial waters for an indefinite period. The net effect of this latter uncertainty is the transfer of an exacerbated risk of leak from U.S. to U.K. waters. These risks have not been disclosed or assessed.

The risk of leak is detailed in a letter written by MARAD to the United States Environmental Protection Agency (EPA) on 12 November 2001 in which MARAD cites several incidences of spills or serious threats since 1998, including:

- September 1998: EXPORT CHALLENGER began leaking from the hull and discharged approximately 4,000 gallons of fuel.
- 14 August 2000: Tank C-407-F of the USS DONNER started to leak, discharging approximately 1,000 gallons of oil. The spill extended a ½ mile oil slick.
- 31 August 2001: 300-400 gallons of water was found leaking into the USS BUILDER engine room daily. Total oil on board the vessel is 48,000 gallons.

The age of the 62 JRRF vessels examined by the JRRF Hull Deterioration Study ranges from 62 to 22 years of age with an average age of 48.75 years in the year 2003. The vessels' conditions were prioritized in various studies conducted over the years. One of the recent studies created a prioritization by ranking four criteria: total hull oil on board; date built; date the vessel entered the JRRF; and hull condition. Each of these categories was then given certain rankings and the addition of all of these scores gave a total vessel score. The higher the number the more risk the vessel poses to the environment.

Of the 13 vessels proposed for export to the UK, all are in the JRRF fleet and 11 appear on the priority list of 40 worst-condition vessels. The vessels, their ages, hull oil quantities, year they entered the JRRF, and their hull conditions, with 1 being worst, are listed in Annex 4 of this submission. The total score is meant to help prioritize the vessels most in need of disposal and/or remediation.

One of the most serious concerns with respect to the vessels proposed for export is the fact that the steel plating of the vessels' hulls has deteriorated due to corrosion. The following table demonstrates the percentage of plating wastage for three of the 13 vessels proposed for export.

Figure 1: Hull Plating Wastage Percentage

Source: Hull Deterioration Study, 1998. (Annex 3).

In March 2000, the Department of Transportation Office of the Inspector General (OIG) issued an audit report regarding the progress of the MARAD disposal program. The OIG stated that:

"Environmental dangers associated with MARAD's old, deteriorating ships are very real and increasing daily. These vessels are literally rotting and disintegrating as they await disposal. Some vessels have deteriorated to a point where a hammer can penetrate their hulls.... if the oil on these vessels were to enter into the water, immediate state or Federal action would be required....

The above facts point to the fragile state of the hulls of the vessels. Thus, a thorough study on the condition of the remaining nine vessels is a prerequisite

to a serious assessment of the risks posed by the proposed vessel exports. Such study would demonstrate that the environmental risks of domestic disposal, an alternative completely omitted from the EA, are drastically less than the risks posed by the proposed export.

II. The EA must provide a full inventory of all of the hazardous wastes in the nine vessels and an analysis of the potential significant cumulative, direct, and indirect impacts on the environment and human health in the US, the UK, and on the global commons during towage and in the case of a total or partial loss at sea or in coastal waters (see Section 3.8)

In order to have a reasonable determination of significant impact on the environment and human health, the EA must afford the agency and the public an understanding of what hazards the nine vessels actually contain. BAN has obtained a listing of some of the hazardous wastes on board the thirteen vessels, attached hereto as Annexes 5 and 6. Some of the hazardous substances of particular concern are discussed in turn.

1. PCBs - "Liquid" and "Non-liquid"

The risk assessment prepared by the Det Norske Veritas (DNV) for Post-Service Remediation Partners, LLC (PRP), reveals that the total non-liquid PCB content could be as high as 698 tonnes on the 13 vessels. The materials commonly containing non-liquid PCBs include gaskets, paints, adhesives, cables, foam, cork, felt and other insulation, caulking material, rubber-like material, and plastics.

Although the EA fails entirely to discuss the likely environmental and health risks posed by the significant quantities of PCBs present on the vessels, MARAD has in the past argued that non-liquid PCBs are less likely to enter or threaten the marine environment than liquid PCBs. MARAD must discuss this risk in the EA, and should not continue to maintain a position not supported by science. The risk of non-liquid PCBs entering the environment as a result of the proposed export is significant.

PCBs are not commonly classified as "solid" or "liquid" because PCBs only exist as oily liquids. The so-called "solid" or "non-liquid" PCB's present on the vessels at issue here are more accurately liquid PCB's impregnated into porous materials like gaskets, filters, and in other materials discussed earlier. PCB's are toxic in any form, regardless of whether the PCB's are in free liquid form, impregnated into porous materials (gaskets, filters, etc.) or in thick resins.

PCB's are not inert in any form, and remain mobile in water, tissue, soil, sediment and air. The degree of movement of PCB's in or from any medium depends on the physical conditions, especially temperature, light, and amount of water. PCB's impregnated in solid materials such as gaskets, filters, rubber hoses, etc., share the same basic chemical structure of the PCB's in an oily liquid form. This characteristic ensures that PCB's are no less toxic in their "solid" forms, and they are equally able to migrate out of the solid material into the environment, particularly for PCB's impregnated in old, cracking, flaking, powdering, and crumbling, aged insulation, paint, and gasket materials, as is the case with these vessels.

In a letter purporting to grant MARAD enforcement discretion regarding the PCB control regulations of the Toxic Substances Control Act (TSCA), currently the subject of a pending litigation, the United States EPA has required that MARAD demand that, prior to export, the contractor remove all transformers and large high and low voltage capacitors, hydraulic and heat transfer fluids containing PCBs greater than 50 parts per million (ppm) in concentration. However, it remains unclear whether all of the liquids on board the vessels that may contain PCBs have ever been tested for PCBs. For example, it is unclear whether or not the fuel or the bilge waters have been tested for PCBs.

Likewise, EPA has required the removal of all "readily removable" solid PCBs. According to the EPA, "readily removable" means the PCBs or PCB item that can be removed in a cost effective and efficient fashion without significant risks to human health and the environment, and without compromising vessel integrity or seaworthiness. Objects are not readily removable if the objects must be removed by heat, chemical stripping, scraping, abrasive blasting, or similar process. With this definition, it remains unclear what "readily removable" really meant to those tasked with removing some of the PCBs. In other words, the actual quantity of PCBs on board the vessels proposed for export is unclear and altogether unassessed in the EA. In any case, these requirements will leave the following potential sources of PCBs on board the vessels:

[Liquid PCBs in concentrations below than 50 ppm (e.g. fuel, transformer, and other oils and bilge waters)

This category can be quite significant if PCBs are found in the fuel oil present on some of the vessels proposed for export. Even at lower concentrations the total volume of discharged PCBs could represent a very significant contaminant in a sensitive marine environment. Such sources would very easily enter the marine environment in the event of a sinking or breaching of the hull.

[Liquid PCBs present in fuel oil or bilge waters in concentrations greater than 50 ppm but untested

It is possible that diesel or bunker fuels or bilge waters are contaminated with PCBs. Thus, it is imperative to test all liquids, not just ones that were manufactured to contain PCBs, to ascertain PCB content. To our knowledge this has not been done for fuel oils or bilge waters. Such sources would very easily enter the marine environment in the event of a sinking or breaching of the hull.

[Non-liquid PCBs in concentrations greater than 50 ppm that were not readily removable

Non-liquid PCBs consist of old deteriorating gaskets, paints, adhesives, rubber devices, and electrical insulation. Due to the age of the vessels these materials are typically flaking, powdering, and crumbling. Indeed it is estimated that on one vessel alone as much as 17,000 pounds of loose paint was encountered. These materials easily disperse in the marine environment.

[Non-liquid PCBs in concentrations less than 50 ppm

Likewise, there may be considerable quantities of PCB material in concentrations below 50 ppm, the environmental impacts of which have not been assessed.

[Liquid PCBs in concentrations greater than 50ppm that were supposed to be removed but were not found prior to export.

The MARAD/PRP contract discusses the possibility that liquid PCBs exceeding 50ppm could be found and that if that were indeed the case, then they would need to be incinerated. Thus, despite the conditions imposed by EPA in their enforcement discretion letter, they have anticipated the likelihood that not all PCBs, liquid or otherwise, exceeding 50ppm will be found. Any liquid PCBs have a great risk of leaking into the marine environment in the event of a breached hull or sinking.

Last, the notion that liquid PCBs pose a greater threat to the marine environment than non-liquid PCBs is false. Indeed, PCBs were used specifically because of their propensity not to solidify. When placed into a non-liquid matrix, PCBs retain that quality and will therefore easily leach if submerged, even temporarily, in a marine environment.

Retrievable and Irretrievable Loss

Losses of the vessel at sea can fall into two categories - retrievable and irretrievable.

In a typical retrievable accident, the lost vessel is submerged in and filled with sea or river water and is then brought back to the surface. In such an event, and depending on the duration of the loss, transformer, capacitor and hydraulic fluids most often remain sealed in containerized units and therefore do not disperse. However, crumbling, powdering, fragmenting chips and fluff will easily wash into and disperse in the environment. In a typical irretrievable accident, it is expected that both liquid and non-liquid PCBs will escape into the marine environment.

The notion that liquid PCBs present more of a threat to the marine environment than non-liquid PCBs is simply untrue.

PCB Leakage - Toxic Impact to Communities and the Environment

PCBs are known to have a high degree of chemical stability, resistance to thermal breakdown, and resistance to many oxidants and other chemicals. These characteristics propelled their wide usage as coolants and lubricants in transformers, capacitors, and other electrical equipment.

PCBs do not occur in the natural environment. They enter the air, water, and soil during their manufacture, use, and disposal; from accidental spills and leaks during their transport; and from leaks or fires involving products containing PCBs.

PCBs are very stable. They do not readily break down in the environment, and are able to persist for very long periods of time. PCBs can travel long distances in the air and be deposited in areas far away from where they were released. A study involving Arctic-living Inuit revealed that the arctic people's overall blood-level PCB concentrations were up to 70 times greater than the pooled sample from the southern part of Canada. Because no PCBs are manufactured in the Arctic, and PCB use and disposal is minor, experts agree that PCBs are migrating to the Arctic from industrialized countries such as the United States.

Due to the persistent nature of PCBs, they are taken up by small organisms and fish in water. The cycle continues when other animals eat these organisms and fish, resulting in a bio-magnification of PCB content higher up in the food

chain. This phenomenon is known as bioaccumulation. PCBs thereby accumulate in fish and marine mammals, reaching levels that may be many thousands of times higher than in water.

PCBs have alarming reproductive and developmental effects on humans and wildlife, including:

Health Risks. "The most common route of human exposure to PCBs is through eating PCB contaminated fish. The EPA estimates an increased cancer risk as high as 1 in 2500 for people eating certain species of fish from the Hudson River; thousand times higher than the EPA's goal for protection." In the Chesapeake Bay ecosystem human exposure occurs through two major pathways: consumption of seafood and other aquatic animals, and inhalation of airborne PCBs.

Children's Health. One of the more vulnerable populations to PCBs are children. "In a study of Dutch children, PCB levels were tied to an increased prevalence of ear infections and chickenpox and with lowered immune system function, and thus greater susceptibility to disease."

Path of Exposure. Air may also be a source of human exposure to PCBs. "By one estimate, residents of the Hudson Valley may inhale as many PCBs as they would get by eating one contaminated fish per year."

Annex 7 of this Submission (Clearwater Fact Sheet 12) provides a summary of the known effects of PCBs on human health.

There is a chorus of agreement not only among US authorities, but also among global authorities - the US EPA, the International Agency for Research on Cancer, the National Toxicology Program, the Institute for Occupational Safety and Health - all consider PCBs a probable human carcinogen. The global acknowledgement of the dangers posed by PCBs is to such an extent that PCBs is one of the identified persistent organic pollutants slated for global elimination under the Stockholm Convention on Persistent Organic Pollutants.

Not only are PCBs probable carcinogens, PCBs also cause non-carcinogenic diseases including liver damage, endocrine effects, and reproductive and developmental defects. "Children born to women who worked in PCB factories showed decreased birth weight and a significant decrease in gestational age with increasing exposures to PCBs."

The EA must assess these and other potentially significant environmental and health threats posed by the proposed exports. These dangers must be assessed both in the context of transport risk and disposal method. The EA must assess these risks in the context of a proposed export to an unauthorized facility that lacks a dry dock, without the consent of the UK Environment Agency, and in violation of both the Toxic Substances Control Act PCB export ban and the notice, consent and permitting requirements of the Resource Conservation and Recovery Act.

The EA must assess the potentially significant impacts of PCBs on the Teesside community where the vessels will be dismantled and disposed of, on the James River community, on the transit route, and, given the persistence and bioaccumulative properties of PCBs, on the global environment and global health.

2. Fuel and Bunker Oils

Annex 6 to this submission shows that the 9 vessels proposed for export in total contain approximately 2,933 tonnes of diesel or heavy bunker fuel oil. These figures do not factor in the vastly larger volume of oily waters contained in the bilges. Any accident involving an oil spill could have devastating effects on birds and marine life, particularly if it took place near the US or UK coast. The recent accidents involving the Exxon Valdez and the Prestige are somber reminders of these potential impacts.

Petroleum products, such as fuel and bunker oils, have different compositions that may produce varied long- and short-term impacts on the marine and coastal environments, and on human health. The EA has not assessed any of these potential impacts. According to a study sponsored by the Australian government, large-scale releases of oil to the environment "have the potential to cause immense damage, particularly to intertidal and subtidal ecosystems such as coral reefs, mangroves, seagrass communities and so on. Additionally, major spills at sea may have less obvious but serious long-term consequences for marine communities, such as detrimental effects on planktonic phases of marine organisms."

Ground contamination from potential fuel oil leaks must also be assessed. The high molecular weight of aliphatic components of fuel oils that have been released through leakage from vessels have very low water solubility and will not vaporize from soils or surface waters. Thus, these "heavier components may be absorbed to particulate organic matter or settle to the sediment," and are most likely to leach through the soil into the groundwater.

Additionally, the vessels proposed for export contain so-called "dirty" bunker oils, consisting of hazardous liquid wastes additives. Some oil suppliers have mixed hazardous wastes such as heavily PCB-contaminated transformer oils and organic acids into bunker oils thereby increasing the environmental risk from leakage and disposal. The Basel Convention's Shipbreaking Guidelines' gray list of hazardous substances in mentions the presence of PCBs in oils. Potential impacts from dirty bunker oils must be assessed.

3. Asbestos

Asbestos is a significant contaminant of all of the nine vessels, which each contain an approximate average of 100 tons. According to the DNV risk assessment, "if asbestos waste is washed up onto the shoreline and becomes dry, it could become airborne and become a hazard to people and other susceptible fauna." Asbestos in high quantities poses potentially significant risks to health and the environment both during transport and during disposal. These risks must be assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

4. Mercury

Mercury is found in gauges, strip lighting, electrical float strips, and other applications on the vessels proposed for export. Mercury, particularly methylmercury, which can be formed in the environment from biological action on elemental mercury, is very toxic and bioaccumulative in the marine environment. These risks must be assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

5. Cadmium

The vessels proposed for export are each likely to contain hundreds or thousands of cadmium-plated parts. Several NDRF vessels were sampled cadmium, and all tested positive. While the Toxic Characteristic Leachate Procedure test was not performed, it is believed that all such cadmium-plated articles would fail the test. These risks must be assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

6. Chromium and Lead Based Paints

There is a high level of lead and chromate based paints used on board the vessels. Lead and chromate paints will fail the Toxic Characteristic Leachate Procedure test and are therefore considered hazardous waste. Exterior paints on board the vessels are in extremely poor condition, bubbling, flaking and falling in large pieces on the decks. On one vessel, the EXPORT CHALLENGER, there are approximately 17,000 pounds of loose or chipped toxic chromium and lead based paint. The risks posed by these substances, during transport and at disposal, must be assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

7. Sodium Chromate treated mud ballasts

The mud ballasts on board the vessels contain Sodium Chromate, and was used by the Navy to prevent corrosion in the mud ballasts. Sodium chromate is potentially harmful to health as it is a recognized human carcinogen. The risks posed by Sodium Chromate to human health and the environment must be assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

8. Toxic Bilge waters

It is known that the vessels have a tremendous amount of polluted waters, which is often toxic enough to be classified as hazardous waste. This is often due to the chemical additives used to prevent corrosion. These substances must be inventoried, and their risks assessed. Compliance with the Resource Conservation and Recovery Act and other applicable US, international, and UK laws must also be assessed.

In sum, the EA should include a complete inventory of hazardous and toxic waste on board the vessels and assess the potentially significant impacts of these substances on human health and the environment in the US, the UK, and the global commons.

III. The EA fails to adequately assess the alternatives available for the disposal of the vessels proposed for export. Other alternatives exist and should have been assessed.

A. The domestic shipbreaking alternative should have been assessed.

Domestic shipbreaking will involve less transport risk. Domestic ship breaking would require the burning of less fossil fuel during transport, reducing air pollution and global warming. Domestic shipbreaking would minimize the cumulative impacts of the export alternative. Domestic shipbreaking would eliminate the present violations of the Toxic Substances Control Act and the

Resource Conservation and Recovery Act. Domestic shipbreaking would provide an investment of tax dollars into US shipbreaking infrastructure, and thereby promote US capacity to break its own defunct vessels going forward. Each of these factors must be assessed.

There are competent US Shipbreakers

MARAD has awarded contracts to domestic shipbreakers in the past, and as recently as September 2003 a contract of \$2.7 million was awarded to Bay Bridge Enterprises in the Chesapeake Bay to dismantle 5 vessels. Additionally, from 1996 to 1999, contracts were awarded to International Shipbreaking Ltd. (ISL) (Brownsville, Texas), ESCO Marine Inc. (Brownsville, Texas), and the Bedoli Group, Inc. (Brownsville, Texas).

According to a June 10, 2003 letter from ISL to MARAD, ISL proposed to handle the disposal of the same 13 vessels granted to Post-Service Remediation Partners (PRP) for \$12.8 million. The contract awarded to AbleUK on July 25, 2003 was for \$17.8 million. MARAD contracted to pay \$4.9 million more for the AbleUK contract than it would have had to pay for the ISL contract. The EA has not assessed this contract decision or the environmental consequences of towing the vessels 4,829 nautical miles to the UK instead of 1,428 nautical miles to Texas.

Further, Bay Bridge Enterprises, LLC. of Chesapeake, Virginia offered to perform the same contract for \$495,000 less than the AbleUK contract. The Bay Bridge contract would not have involved any open seas towing risks.

The EA fails to assess domestic alternatives. Likewise, the EA fails to explain why, given the available domestic alternatives, the AbleUK alternative achieved the "Best Value" standard of the National Maritime Preservation Act.

Losses at Sea are Common

The deteriorated condition of the nine vessels proposed for export exacerbates the ordinary risks of dead tandem high seas towing. The unpredictable weather of the North East Atlantic escalates the risk of sinking, breaching or leaking. In fact, towing losses for vessels bound for scrap yards are not uncommon. "Tandem tows are particularly problematic. A tandem tow... will result in the tow rig surging and the two vessels under tow impacting one another. Additional factors are control of the tow depending on rig, and servicing the tow if a problem surfaces on one of the vessels. Additionally a tandem tow decreases speed of advance and correspondingly increases the time that the tow is exposed to changes in the weather."

The EA fails to assess any of these risks. Some recent towing loss incidents of vessels bound for scrapping operations are highlighted below. Most of these losses were irretrievable.

- USS STODDERT: Lost at sea during a tandem dead tow between Pearl Harbor, Hawaii, and the Panama Canal in early January 2001. The vessel was destined for ISL in Brownsville, Texas. In an affidavit prepared by Paul Torres, Engineer and Mate on the tow, the "STODDERT was staunch and seaworthy prior to the tow". Yet during the journey, the rear vessel USS COCHRANE slammed into the USS STODDERT causing it to take on water. The Captain of the tugboat then scuttled the vessel intentionally.

- USS CONSTITUTION: Vessel sank in the Pacific Ocean, 700 miles north of Hawaii, during dead tow from Portland, Oregon to China for scrapping, November 1997.
- S.S. SUN: Sank during dead tow on July 25th 2001, off southeast South Africa.
- BOREI: Russian fishing trawler sank in the Sea of Japan on August 8, 2002. According to the press service of the State Piscatorial Committee of the Russian Federation, two fishing vessels, the Yashino and the Borei were being tandem towed from Vladivostok, Russia to Pusan, South Korea for repairs. The weather deteriorated, and the towing cable connecting the Borei broke. The trawler was thrown against the tug, began taking on water and eventually sank.
- RYNDAM: On March 16, 2003, the Ryndam sank in the Caribbean Sea during dead tow to Alang, India for scrapping.
- USS WAYNE VICTORY: In December 2001, the aging Wayne Victory was being towed to a Texas scrap yard when its hull cracked open 12 miles off Miami Beach,. Only \$100,000 worth of emergency repairs kept it afloat and prevented a leak. Inside the Wayne Victory were 57,000 gallons of oil. If the vessel were on the high seas, the repairs may not have been possible.
- K-159: Russian nuclear sub K-159 sank in the Barents Sea northwest of Kilden Island off the Kola Peninsula on August 30, 2003. The submarine was being towed to Polyarnoye scrap yard. Only one of the 10 crewmen on board the submarine were rescued, the other 9 were killed.
- USS BROOKLYN: Sold to Chile, January 9, 1951 and renamed O'Higgins, the vessel sunk while under tow to India for scrapping, November 3, 1992.
- M.V. SEA: Sank off South Africa while under tow and destined for scrap yards in India, July 11, 2001.
- S.S. BRITANIS/BELOFIN-1: Sank off Cape Town, South Africa October 21, 2000, under tow to India or Pakistan from Tampa, Florida, for disposal.

Tandem tows exacerbate the ordinarily serious risk of towing dead vessels due to the fact that they are far more difficult to control in the event of bad weather, loss of tug power, or other unforeseen circumstance. Numerous incidents have been documented where one of the towed vessels collided with the other towed vessel, sometimes causing sinkage or severe damage to a vessel's hull. These cases demonstrate the high risk of towing at sea, and the EA must assess the risk of loss of the vessels proposed for export in the context of this history of towing sea losses.

Dead Tows Are So Risky That They Are Not Insurable

According to vessel towing insurance expert and President of Global Insurance Specialists LLC, Seattle, Mr. Damon Nasman, "we believe that it is extremely difficult, if not impossible in this market to insure any tandem scrap tows. The reason being the high level of risk involved of a loss at sea." This view is corroborated by a statement found in a fax letter from Targe Towing Ltd. of Scotland, to the UK Secretary of State's Representative (SOSREP)'s office of Maritime Salvage and Intervention. That letter states, "it is known that some London Underwriters when represented by the former Salvage Association, did not normally approve tandem tows."

According to the shipbreaking contract between MARAD and AbleUK, the amount of insurance for Pollution (sudden and accidental liability) will be at \$5 million per occurrence. This is very little coverage given the high costs of repair, recovery, and remediation of lost vessels and spills. MARAD is "self-insured" against losses beyond \$5 million. The burden, in other words, is shifted on to the taxpayer. The taxpayer should have full information regarding these risks. MARAD must also disclose and assess its purported oil spill plan, and provide full risk disclosure.

B. Fourth alternative -- prior decontamination of all oils and hazardous wastes as near to the site of origin as possible, prior to any further recycling, at home or abroad.

The simplest way to allay the concerns over the hazardous waste on board the vessels is to remove it and dispose of it in accordance with US law. The EA fails to discuss this alternative. The US has the technical capability to undertake this alternative. There is no need to outsource US jobs and pollution.

IV. The EA should analyze the environmental consequences of the legal status of the proposed export under the Resource Conservation and Recovery Act (RCRA)

A. RCRA Notice and Consent Violations

RCRA governs the management of hazardous wastes in the United States, including their export to foreign countries. RCRA requires that potential exporters of controlled wastes obtain certain notifications, consents and approvals in connection with the export of hazardous wastes to foreign countries for disposal and/or recovery. RCRA further requires that the receiving facility be authorized to operate in the receiving country, in this case AbleUK and the United Kingdom respectively.

In October and November of 2003, the United Kingdom Environmental Agency (UKEA) informed MARAD that the required consent was lacking. Specifically, MARAD was informed that (i) the AbleUK disposal facility does not have permission to engage in trans-frontier shipment of waste; (ii) a required modification to the waste management license for AbleUK is invalid; and (iii) the required local authority planning permission for the creation of a dry dock is not in place, and is currently the subject of court proceedings.

The impacts of this information should be assessed before any of the vessels are exported to the United Kingdom for disposal. Indeed, if the AbleUK facility is not the final destination of the vessels, an entirely new EA will be required.

B. International Law - Transit States Notice Violation

Pursuant to RCRA, notice must be given to transit states, the states where the waste is proposed to pass through on the way to the destination nation. The consequences of MARAD's failure to provide notice or receive consent from the Netherlands, France, or Belgium prior to the export must be assessed, and MARAD must condition the proposed export on compliance with this and all legal requirements. In fact, the Belgian government has already raised a complaint to the UKEA for not being notified of the waste movement and threatened to exercise its sovereignty over its territorial waters by denying passage of the waste vessels.

The EA must also assess the operation of, and its compliance with, other applicable international agreements such as the Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal, and the European Waste Shipment Regulation (EWSR). Both of these instruments include waste movement procedures and penalties for violations. MARAD must disclose this information and condition the proposed export on compliance with these agreements.

C. Return and/or Trans-shipment of Waste Vessels

Given the current state of MARAD's RCRA compliance, it is possible that any exported vessel will be returned to the United States. This possible outcome must be assessed.

Similarly, the environmental impacts of the possibility of transshipment to a third country in the event of AbleUK's failure to secure necessary permits must be assessed. In no manner does BAN condone any further transshipment of the waste vessels, as BAN strongly maintains that the "Ghost Fleet" should be disposed of and handled within the US in compliance with requirements of international for countries to be self-sufficient in their hazardous wastes.

V. The EA should analyze the environmental consequences of the legal status of the proposed export under the Toxic Substances Control Act (TSCA)

The EA does not include any conclusion that the proposed export does not pose an unreasonable risk to health or the environment, and does not explain the basis on which such a conclusion could be made, despite the PCB export prohibition of the Toxic Substances Control Act, 15 U.S.C. § 2605(e)(1), (3); 40 C.F.R. §§ 761.20, 761.97 (TSCA). Nor does the EA discuss TSCA compliance in the context of TSCA's goal that PCB harms not be transferred from the United States to other nations. See, e.g., 59 FR 62788 at 60 (1994) ("EPA believes that export of PCBs to other countries needs to be limited so as not to pose a risk of injury to health or the environment in those countries.").

VI. The scope of the EA's review inappropriately excludes environmental impacts to the global commons (high seas) and the United Kingdom

Several of the hazardous wastes present in the remaining nine vessels, respect no geographical boundaries - PCBs, Mercury, CFCs, etc. The EA inappropriately fails to assess the potential global and UK impacts of these pollutants. Even if discharged outside of US territory, these substances can directly, indirectly and cumulatively impact US territory. These impacts must be assessed for each alternative. 40 CFR § 1508.7, 1508.8(a), (b); 42 USC § 4332(2)(E)(iii).

VII. Nuclear Power Stations - Cooling Water Threats

Both the US shipping route and the AbleUK disposal facility are close to nuclear power stations - the Surrey Nuclear Plant in Virginia, USA and the Hartlepool Power Station in the UK. Both of these plants rely on cooling water from nearby sources to prevent catastrophic events that could result in releases of radiation. The presence of Bunker C heavy fuel oil in the cooling water intake channels of these plants could cause serious problems with the functioning of the reactors, and increase risk of reactor malfunction and catastrophic radiation releases. These impacts must be assessed.

VIII. Assessing the cumulative impacts of fuel burned in the trans-Atlantic towing

An environmental concern that the EA fails to explore is the assessment of the direct, indirect and cumulative impacts of the fuel burned for the trans-Atlantic tow, as compared to the direct, indirect and cumulative impacts of a voyage within the domestic ship breaking yards in the US. In conducting this assessment the EA should assess air pollution-related health impacts of burning marine fuel, and in particular the formation of NOx and ozone and related health impacts. The EA should also assess the direct, indirect and cumulative impacts to global warming caused by CO2 emissions from the fuel burned by towing the vessels to the UK instead of disposing of them on the East Coast of the United States.

IX. Conclusion

Governments are increasingly called upon to assess and choose between risks. There is a monumental divide, however, between necessary and needless risks. In the case of the proposed vessel export, prudence, common sense, science and economics all suggest that export is a needless risk. The EA can play a pivotal role in ensuring the public that MARAD is making a risk decision based on all of the relevant information. BAN sincerely hopes that the EA accomplishes this task by undertaking an honest and comprehensive assessment above in light of the comments herein.

Yours sincerely,

James Puckett
Coordinator, Basel Action Network

ANNEX 4

MARAD Risk Scores for the 13 Vessels Slated to be Exported to AbleUK

NAME	Year Built	YearScore	Hull Oil	Oil Score	Date Enter	JRRF	JRRFScore	Hull Cond.	(1 is worst)	HullScore	Total Score	On MARAD
Priority List of 40 Worst												
CALOOSAHATCHEE	1945	36	.8	8	1991	6	4	14	64	yes		
CANISTEO	1945	36	5.7	8	1990	6	4	14	64	yes		
DONNER	1945	36	1.8	8	1976	12	1	20	62	yes		
MORMACMOON	1965	12	102.6	8	1985	6	6	10	36	yes		
MORMACWAVE	1962	20	198.5	16	1985	6	6	10	52	no		
PROTECTOR	1945	--	--	--	--	--	--	--	--	yes		
AMERICAN RANGER	1965	12	337.6	24	1983	6	4	14	56	yes		
AMERICAN BANKER	1962	20	313.4	24	1987	6	4	14	64	yes		
RIGEL	1955	--	15.3	--	--	--	--	--	yes			
COMPASS ISLAND	1956	32	219.7	24	1989	6	4	14	76	yes		
SANTA CRUZ	1966	12	135.7	16	1984	6	4	14	48	yes		
SANTA ISABEL	1967	12	407.0	40	1984	6	1	20	78	yes		
CANOPUS	1965	12	217.1	24	1997	6	4	14	56	no		

Sources: James River Reserve Fleet Scrapping Analysis; Rand Report.

DONNER	5,910	175.00	95.00	0.01	408	1	19	--	--	--	
	5,211.99										
MORMACMOON	9,013	261.00	109.00		0.04	823	267	128	--	25	
	1,600	5,799.96									
MORMACWAVE	10,931	265.00	109.00		0.04	1,553	96	168	1.0	18	
	1,600	7,104.96									
PROTECTOR	6,194	179.00	107.00		0.05	10	38	646	167.0	4	--
	5,042.95										
AMERICAN RANGER	8,821	274.50	101.00		0.04	322	279	464	205.0	2	
--	7,395.46										
AMERICAN BANKER	9,940	299.00	131.00		0.04	10	322	99	266.0	--	
--	8,500.96										
RIGEL	8,351	278.00	77.00	0.06	10	1	--	--	--	7,984.94	
COMPASS ISLAND	15,057		419.00		--	--	--	449	--	225.0	15
--	13,949.00										
SANTA CRUZ	10,132	318.00	126.00		0.04	263	4	--	2.0	2	
	400	8,650.96									
SANTA ISABEL	11,476	338.00	126.00		0.04	762	12	9			
1.0	1	200	9,621.96								
CANOPUS	12,618	360.00	317.00		0.02	?	1,480	--	218.0	1	
?	12,361.00										
Total Weight	138,332	3,865.50	1,452	.40	12,155		3,109	2,291			
	1096.5	68	3,800	112,420.62							
Method of Disposal		Landfill	Landfill	Incinerator	Treatment						
Treatment	Re-use	Re-use	Re-use	Re-use	Re-use						
% of Ship	100%	2.8%	.9%	.1%	9.0%	1.3%	1.8%	.8%	.1%	2.8%	80.4%

Source: OECD Waste Shipment Tracking Form - Notification No. USDC170603. June 4, 2003; Letter amending notification July 25, 2003 to David Fellows (UK EA) from James E. Caponiti (MARAD)

ANNEX 7

Clearwater Fact Sheet 12

www.clearwater.org

What Are The Human Health Effects Of PCBs?

Polychlorinated biphenyls are a group of 209 different chemicals, which share a common structure but vary in the number of attached chlorine atoms. General Electric dumped an estimated 1.3 million pounds of different types of PCBs into the Hudson River from 1946 until 1977, when they were banned. The international treaty on Persistent Organic Pollutants, drafted by 122 nations in Johannesburg in December 2000, targeted PCBs as one of the 'dirty dozen' chemicals to be phased out worldwide.

PCBs are a probable human carcinogen.

The International Agency for Research on Cancer and the Environmental Protection Agency classify PCBs as a probable human carcinogen. The National Toxicology Program has concluded that PCBs are reasonably likely to cause cancer in humans. The National Institute for Occupational Safety and Health has determined that PCBs are a potential occupational carcinogen.

Studies of PCBs in humans have found increased rates of melanomas, liver cancer, gall bladder cancer, biliary tract cancer, gastrointestinal tract cancer, and brain cancer, [1] and may be linked to breast cancer. PCBs are known to cause a variety of types of cancer in rats, mice, and other study animals. [2]

Why are PCBs called a 'probable' carcinogen?

EPA's regulations on cancer-causing chemicals use the term 'probable' when a chemical is known to cause cancer in animals and where there is evidence that suggests that it causes cancer in humans but which is not conclusive. Because you can't feed chemicals to humans to see how they respond, it is much more difficult to demonstrate carcinogenicity in humans than in animals. Instead, studies are undertaken of groups who have been exposed to a chemical, and if they suffer from more cancers than would be expected at normal levels, this may indicate that the chemical was a carcinogen. However, there are many difficulties doing these studies: small numbers of people known to be exposed to a chemical; the fact that people suffer from many cancers without any chemical exposure; the fact that in some cases these people were exposed to a number of other chemicals; and the need to demonstrate high cancer rates that cannot be random in order to draw conclusions. Thus the term 'probable' reflects the limited nature of the studies, and it is rare that a carcinogen is so effective that it can be called a 'known' human carcinogen.

The fact that PCBs are called a 'probable' carcinogen should not be taken as a sign that they are benign.

Acute toxic effects.

People exposed directly to high levels of PCBs, either via the skin, by consumption, or in the air, have experienced irritation of the nose and lungs, skin irritations such as severe acne (chloracne) and rashes, and eye problems. [3]

PCBs cause developmental effects.

Women exposed to PCBs before or during pregnancy can give birth to children with significant neurological and motor control problems, including lowered IQ and poor short-term memory.

A group of children in Michigan whose mothers had been exposed to PCBs were found to have decreased birth weight and head size, lowered performance on standardized memory, psychomotor and behavioral tests, and lowered IQ. These effects lasted through at least 7 years. [4] A group of women occupationally exposed to PCBs in upstate New York had shorter pregnancies and gave birth to children with lower birth weight. [5] Another study, of the children of women who ate contaminated Lake Ontario fish, found significant performance impairments on a standardized behavioral assessment test. [6]

Exposure of one form of PCB to rats resulted in retarded growth, delayed puberty, decreased sperm counts, and genital malformations. [7] In other studies, exposure of PCBs to rats in utero led to behavioral and psychomotor effects that lasted into adulthood. [8]

PCBs disrupt hormone function.

PCBs with only a few chlorine atoms can mimic the body's natural hormones, especially estrogen. Women who consumed PCB-contaminated fish from Lake Ontario were found to have shortened menstrual cycles. [9] PCBs are also thought to play a role in reduced sperm counts, altered sex organs, premature puberty, and changed sex ratios of children. More highly chlorinated PCBs (with more chlorine atoms) act like dioxins in altering the metabolism of sex steroids in the body,

changing the normal levels of estrogens and testosterone. [11] PCBs tend to change in the body and in the environment from more highly chlorinated to lower-chlorinated forms, increasing their estrogenic effects.

Immune system and thyroid effects.

In a study of adolescents Mohawk males in New York State, PCBs were shown to upset the balance of thyroid hormones, which may affect growth as well as intellectual and behavioral development. [12]

Like dioxin, PCBs bind to receptors that control immune system function, disturbing the amounts of some immune system elements like lymphocytes and T cells. [13]

In a study of Dutch children, PCB levels were tied to an increased prevalence of ear infections and chickenpox and with lowered immune system function, and thus greater susceptibility to disease. [14]

Eating fish is the major route of exposure to PCBs.

The most common route of exposure to PCBs is from eating contaminated fish. The EPA estimates an increased cancer risk as high as 1 in 2500 for people eating certain species of fish from the Hudson River; thousand times higher than the EPA's goal for protection. [15]

Air near a contaminated site may also be polluted by PCBs. By one estimate, residents of the Hudson Valley may inhale as many PCBs as they would get by eating one contaminated fish per year. [16] Although small amounts of PCBs can enter the body from swimming in highly contaminated water, this is unlikely to be significant except in the most extreme cases.

Municipalities that use the Hudson River as a drinking water source carefully monitor the water for PCBs, and there are no detectable levels in the water supplies. [17]

PCBs accumulate in the body and in the ecosystem.

Once PCBs enter a person's (or animal's) body, they tend to be absorbed into fat tissue and remain there.

Unlike water-soluble chemicals, they are not excreted, so the body accumulates PCBs over years. This means that PCBs also accumulate via the food chain: a small fish may absorb PCBs in water or by eating plankton, and these PCBs are stored in its body fat. When a larger fish eats the small fish, it also eats and absorbs all the PCBs that have built up in the small fish. In this way, larger fish and animals can build up a highly concentrated store of PCBs. Some types of PCBs may degrade into nontoxic form while they are stored in the body, but this process can take many years.

In the same way, PCBs accumulate in women and pass on to their infants through breast milk. This accumulation means that nursing infants may ingest PCB levels much higher than the levels in fish and other foods consumed by their mothers. [18]

PCBs have been found all over the world, including significant amounts in the Arctic and Antarctic, far from any sources. In fact, several studies have found very high levels of PCBs in the blood and breast milk of Inuit women. [19] It is

thought that PCBs spread through the air, after evaporating from contaminated water and sediments, as well as through the water.

For More Information

For more information on PCB health effects, we recommend starting with these two papers:

Carpenter, D. O. (1998). Polychlorinated Biphenyls and Human Health. International Journal of Occupational Medicine and Environmental Health, 11(4): 291-303.

Johnson, B. L. et al (1999). Public Health Implications of Exposure to Polychlorinated Biphenyls (PCBs). Agency for Toxic Substances and Disease Registry. Online at <http://www.atsdr.cdc.gov/DT/pcb007.html>

For details on the EPA's risk assessment for human health in the Hudson Valley, and for details of the proposed cleanup plan, see

EPA (2000). Hudson River PCBs Reassessment RI/FS Phase 3 Report: Feasibility Study. U. S. Environmental Protection Agency, and U. S. Army Corps of Engineers. Online at <http://www.epa.gov/hudson/>

Footnotes

- [1] Summarized in ATSDR (2000) and Johnson et al (1999)
- [2] Summarized in Johnson et al (1999)
- [3] See the discussion of the Yusho and Yu-Cheng episodes, in Johnson et al (1999) and elsewhere.
- [4] Jacobson and Jacobson (1996)
- [5] Taylor et al, summarized in Johnson et al (1999).
- [6] Stewart et al (2000)
- [7] Gray et al (1995)
- [8] Weinand-Harer et al (1997)
- [9] Mendola et al (1997)
- [11] Arcaro et al (1999)
- [12] Schell et al (2000)
- [13] Summarized in Carpenter (1998)
- [14] Weisglas-Kuperus et al (2000)
- [15] EPA (2000), Table 1-9.
- [16] David Carpenter, personal communication.
- [17] www.pokwater.org
- [18] Korrick and Altshul (1998)
- [19] Summarized in Johnson et al (1999)

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Arcaro, K. F. et al 1999. Antiestrogenicity of environmental polycyclic aromatic hydrocarbons in human breast cancer cells. Toxicology, 133: 115-127.

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Gray, L. E. et al 1995. Functional Developmental Toxicity of Low Doses of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin and a Dioxin-Like PCB (169) in Long Evans Rats and Syrian Hamsters: Reproductive, Behavioral and Thermoregulatory Alterations. *Organohalogen Compounds*, 25: 33.

Jacobson, J. L. and Jacobson, S. W. (1996). Intellectual Impairment in Children Exposed to Polychlorinated Biphenyls in Utero. *New England Journal of Medicine*, 335(11): 783-789.

Johnson, B. L. et al (1999). Public Health Implications of Exposure to Polychlorinated Biphenyls (PCBs). Agency for Toxic Substances and Disease Registry. Online at <http://www.atsdr.cdc.gov/DT/pcb007.html>

Korrick, S. A. and Altshul, L. 1998. High Breast Milk Levels of Polychlorinated Biphenyls (PCBs) among Four Women Living Adjacent to a PCB-Contaminated Waste Site. *Environmental Health Perspectives*, 106(8): 513.

Mendola, P. et al, 1997. Consumption of PCB-contaminated Freshwater Fish and Shortened Menstrual Cycle Length. *American Journal of Epidemiology*, 145(11): 955.

Safe, S. H. (1994). Polychlorinated Biphenyls (PCBs): Environmental Impact, Biochemical and Toxic Responses, and Implications for Risk Assessment. *Critical Reviews in Toxicology*, 24:(2): 87-149.

Schell, L. M. et al 2000. Polychlorinated biphenyls and thyroid function in adolescents of the Mohawk Nation at Akwesasne. In *Proceedings of the Ninth International Conference*, Turin, Italy.

Stewart, P. et al 2000. Prenatal PCB exposure and neonatal behavioral assessment scale (NBAS) performance. *Neurotoxicology and Teratology*, 22: 21-29.

Weinand-Harer, A. et al 1997. Behavioral effects of maternal exposure to an ortho-chlorinated or a coplanar PCB congener in rats. *Environmental Toxicology and Pharmacology*, 3: 97-103.

Weisglas-Kuperus, N. et al 2000. Immunologic Effects of background Exposure to Polychlorinated Biphenyls and Dioxins in Dutch Preschool Children. *Environmental Health Perspectives*, 108(12): 1203.

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BASEL ACTION NETWORK, a Sub-Project of the Tides Center, 1827 39th Avenue EastSeattle, WA 98112, andSIERRA CLUB, 11986 Elmgrove CircleCincinnati, OH 45240, Plaintiffs, v. MARITIME ADMINISTRATION, and Capt. WILLIAM G. SCHUBERT, in his official capacity as Administrator,400 7th Street, SWWashington, DC 20590, andENVIRONMENTAL PROTECTION AGENCY, and MARIANNE HORINKO, in her official capacity as Acting Administrator,1200 Pennsylvania Avenue, NWWashington, DC 20460, Defendants.

))))))))) Case No.: DECLARATION OF WERNER F. HOYT,
P.E. IN SUPPORT OF PLAINTIFFS' REQUEST FOR INJUNCTIVE RELIEF

I, Werner F. Hoyt, P.E., declare as follows:

1. I am an independent consulting engineer located in Mt. Shasta, California. I have and undergraduate degree in aerospace engineering from the University of Oklahoma and a masters degree in mechanical engineering with emphasis on metallurgy and Naval Engineering from the U.S. Naval Postgraduate School - Monterey. I am a registered professional mechanical engineer in California and hold US Coast Guard (USCG) licenses as a Chief Engineer, Limited and Second Assistant unlimited both motor and steam. I have over 20 years of experience in ship repair, conversion, reactivation, and breaking.

2. I contributed substantially to the VSE Corp. proposal to accomplish ship breaking under the Navy's pilot ship disposal program, reviewing and approving as senior engineer the operations plan developed by VSE and Earth Tech staffs. As operations manager and chief engineer for Ship Dismantling and Recycling (SDR), a joint venture between VSE Corp. and Earth Tech (a wholly owned subsidiary of Tyco Industries), I operated a model ship scrapping program at Hunters Point San Francisco, California. The SDR program was praised by the Navy for its environmental, health, safety, and production methods. SDR accomplished ship breaking from January 2000 to December 2001, when it was dissolved due to lack of Congressional Funding for ship disposal in the FY02 Congressional budget for Ship Breaking.

3. From 1980 to 1984, I served as both engineering watch officer and deck officer on the USS Worden (CG-18) and the USS Meyerkord (FF-1058), directly experiencing at sea the effect of hurricanes and typhoons with winds of over 100 knots and seas in excess of 35 feet.

4. From 1984 to 1996, I was a Naval Engineering Duty Officer accomplishing waterfront supervision, repair and overhaul planning, and supervision of contracts for Naval Ship repair and overhaul at Long Beach Naval Shipyard, Naval Ship Repair Facility Subic Bay, and Supervisor Shipbuilding Conversion and Repair, Long Beach. This included dry dock hull and structural inspections, review of hull inspection reports, work orders, and inspection of work performed to repair hull deterioration. Work supervised included repair of damage from collision, grounding, corrosion, and storm damage due to high sea states. Specific storm damage repaired at Subic Bay included bow damage to the Amphibious Assault Carrier USS Peleliu (LHA-5). Damage was incurred to the ship's bow approximately 40-45 ft above waterline transiting a winter storm in the Bering Sea while accomplishing a Northern route passage in 1988. I held the positions of Ship Superintendent (Corresponds to a marine port engineer) at Long Beach Naval Shipyard and Planning officer for Military Sealift Command Ships undergoing repair or drydocking overhaul at U.S. Naval Repair Facility Subic Bay. Work required compliance with either Navy Standards or ABS/USCG standards for ship repair as applicable.

5. From 1993 to 1996, I accomplished survey and certification of repairs to privately owned drydocks accomplishing Navy ship repair in the Long Beach/Los Angeles area for Naval Sea Systems Command Quality Office for Drydock Certification. Accomplished reactivation, drydock and overhaul repairs to three Knox class frigates at Long Beach removed from layup. During this period I served concurrently as the Planning Officer and Contracting Officer for Supervisor of Shipbuilding Conversion and Repair, Long Beach.

6. During the period Nov. 1996 to Nov. 1998, I was the VSE Corporation senior port engineer in charge of the removal from storage, inspection, repair, activation and sea trialing of two Navy ocean salvage tugs and one Knox class frigate for transfer to foreign Navies. As port engineer I was responsible for visual hull inspections, review and evaluation of non-destructive test method hull thickness surveys for required repairs as well as all salt water, waste, or other systems with suction or discharge to the sea.

7. From 1995 to 2001, I have directly supervised preparation for tow and pre-tow condition inspections with determination of preparation requirements for the following ships:

Ex-Wabash (AOR-5)
Ex-Mobile (LKA-115)
Ex-Bolster (ATS-3)
Ex-Oullet (FF-1077)
Ex-Lockwood (FF-1064) - Scrapped by SDR
Ex-Gray(FF-1054) - Scrapped by SDR
Ex-Lang (FF-1060)
Ex-Meyerkord (FF-1058)

8. I have accomplished environmental assessments and hull surveys, and pre-tow inspections without towing from 2000 to 2001 for the following ships:

Ex- England (CG-22)
Ex- Halsey (CG-23)
Ex- Francis Hammond (FF-1067)
Ex- Cochrane (DDG-21)
Ex- Benjamin Stoddert (DDG-22)

9. I accomplished and hull survey, environmental health and safety, and hazmat assessment inspection utilizing the Red Oak Victory as representative of the aging ships in the fleet in storage at the Ready Reserve Fleets for National Environmental Education Training Center (NEETC) under a Department of Defense (DoD) grant by the Strategic Environmental Development Program during January to March of 2003.

10. The Red Oak Victory is currently part of the Richmond Museum, California. She was selected to become part of the museum because she was determined to be in the best overall condition of the Victory Class ships at Suisun Bay. She became our basis for evaluating hull and waste disposal stream conditions for our study due to availability after we had been denied access to the Ready Reserve Fleet to accomplish the study for the (NEETC).

11. Red Oak Victory's hull condition overall was excellent with less than 10% wastage ("wastage" is a term referring to the general thinning of the hull). Her layup (preparation for long term storage) included hard blanks welded over all sea chest openings, which would have arrested any corrosion. (The sea chest is an area where corrosion is a particular problem.) We did find a rust blister band approximately eight to twelve inches wide approximately three feet above waterline. This band of corrosion exists due to alternate wetting and drying of the hull while the vessel is in layup providing optimal conditions for corrosion. When this class was deemed obsolete and in excess, MARAD ceased hull and preservation maintenance. With the cessation of preservation these hulls began to deteriorate. During our inspection we accomplished four blind cross sections in the forward pressure area and four blind cross sections in the engine room midships by ultrasonic test method from the inside of the hull. We found hull plate thinning of up to ninety (90)

percent on several of the cross sections. Visual examination of the hull in these areas from the exterior found heavy rust blistering. It can be inferred that if the Red Oak Victory was in the best condition of the ships of this class that conditions are worse on other vessels of the same class, on vessels of a different class but of the same age, or on vessels that have been without preservation maintenance for the same period.

12. My observations of some of the vessels at Suisun bay found that some hulls were extremely deteriorated and had been patched internally with concrete at some point in time (specifically the Ex Wabash (AOG)). Marine Survey and Management Inc., a company that prepares and tows vessels from the United States for overseas scrapping, has conducted pre-tow surveys on ships with shell structures that are the same or similar as the thirteen ships described in paragraph 15 below. Because of the poor condition of these ships, the surveys resulted in an assessment that they were unsafe for tow without structural repair. This resulted in a cancellation of sale for scrap by MARAD in the late 1990's.

13. Environmental conditions at the reserve fleet in Suisun Bay are less severe than at James River. Temperatures and humidity during the summer months are substantially lower. The high temperature and humidity conditions at the James River Ready Reserve Fleet increase general rates of corrosion as well as corrosion in a rust carbuncle. Because of the more aggressive corrosion environment, I would expect more severe deterioration. This is substantiated by the government's hull deterioration study in 1998. Their exhibit of hull wastage indicated and average wastage of 15 to 25 percent with wastage of 35 to 40 percent near holed areas of the MormacMoon (1965) and Rigel (1955). These numbers are averages of readings and include localized deterioration which is far more severe. The first ships planned for tow are the Caloosahatchee and Canisteo built in 1945, with cessation of hull maintenance around 1990 and 1991 respectively. Due to both age and time in layup without hull preservation, corrosion in the area of the air water interface (blister band) are now approaching levels similar than that reported for Rigel and the MormacMoon. Cessation of hull maintenance occurred in 1985 for MormacMoon. No date was provided in the Rand Report on James River Scrapping Analysis but the date for cessation of maintenance is assumed to be 1985 or earlier.

14. Two areas of ships experience accelerated corrosion rates due to either stress concentration factors, lack of electrical continuity with the adjacent portions of the hull, and/or differences in microcrystalline structure. Specifically these are weld seams and lap rivet seams. Ship design included both structural characteristics until fully welded construction became standard practice at the end 1960's. Weld seam deterioration and repair is normally conducted during drydocking evolutions for inspection preservation and repair. Corrosion is accelerated in these areas due to corrosion protection system failing before that on the general plating due to the higher profile resulting from the weld. I have encountered as much as forty percent deterioration in weld seams on naval vessels requiring repair with docking intervals of five years. This specific problem was not directly noted in the Rand Report. Weld joints are of specific concern in the underwater hull where failure can lead to localized flooding to catastrophic failure under bending loads. On the main deck area deterioration generates a similar problem under bending loads. Riveted lap seams experience a similar accelerated corrosion problem starting with the failure of the anticorrosion system. Here the rivet head deterioration leads to decreased strength of the lap seam joint usually located along the turn of the hull in the vicinity of the rolling keel. Replacement of deteriorated rivets due to corrosion was a normal part of ship overhaul and repair with docking periodicities of three to five years. Corrosion resulting from long-term layup - three to five times the duration for a normal drydock cycle - increases severely the anticipated deterioration in these critical areas.

15. During my years in ship repair, overhaul, and ship breaking I have developed good estimating values for overall waste streams to be encountered on ships. The waste stream is the elements of the ship that cannot be recycled, or cannot be recycled economically. For naval vessels this was approximately 10 to 13 percent of light ship displacement. For cargo vessels this value was determined to be 7 to 8 percent of light ship displacement. In our Victory Class study, the waste streams were as follows based on plan reviews, direct observation, and sampling for contaminants to determine disposal level requirements:

Waste Stream	Quantity	% Displacement
ACM	10 Tons	0.22
Pb (paints)	65 Tons	1.48 (Est. ~ 7 tons of recoverable Ph)
Wire (PCB/ACM)	10 Tons	0.22
Fiberglass	5 Tons	0.11
Construction Debris	105 Tons	2.40
Deck covering	110 Tons	2.51
Total Waste stream	335 Tons	7.65
Recoverable Metals	4045 Tons	92.35
Total vessel	4380 Tons	100.00

Applying these values to the following ships the specific areas of concern have the following characteristic waste streams

Name	Light Ship Displacement	Waste Stream	Total	PCB Waste	Pb (wire)
(Paints)	(Tons)	Model	(Tons)		(Tons)
(Tons)					
Caloosahatchee	10,300	Cargo	773	23	152
Canisteo	10,723	Cargo	804	24	159
Donner	5,323	Military	532	12	79
Mormacmoon	7,545	Cargo	566	17	112
Mormacwave	7,545	Cargo	566	17	77
Protector	5,174	Military	517	46	112
American Ranger	7,545	Cargo	566	17	149
American Banker	10,048	Cargo	754	22	120
Rigel	8,097	Military	810	71	207
Compass Island	13,950	Military	1395	23	135
Santa Cruz	9,099	Cargo	682	20	135
Santa Isabel	9,092	Cargo	682	20	118
Canopus	12,000	Military	1200	106	178
Totals	116,441		17,230		515
1723					

The bulk of PCB contaminants are found in the wire disposal waste stream. Ships constructed during this period utilized a filler matrix in electrical wiring containing either cellulose fiber impregnated with PCBs or other material containing asbestos. Weather deck jacket wire could also contain solid lead as was encountered on weather deck lighting circuits containing up to 30% lead by weight. For ships of this era internal preservation systems were primarily lead-based anti-corrosive paints. As a consequence there is a substantial amount of lead. Average lead content for the Red Oak Victory was estimated at 10% by weight of the applied paints. This equates to 172 tons of lead estimated for the ships planned for tow.

16. Even ships in good condition sustain hull damage in heavy seas as I have experienced accomplishing storm damage and seeing storm damage occur to ships in company during severe sea states. In general, conditions in the North Atlantic are more severe in fall and winter than the Pacific. Over the last ten

years a number of unmanned vessels under tow to be scrapped have been lost due to storm related and hull conditions.

a. In Fall of 1997, the SS Constitution under tow from Portland to a Far East breaking yard sunk during a storm north of Hawaii. Suspected cause of loss was failure of a seachest or piping system.

b. In 2000 during a tandem tow of the Ex Stoddert and Ex Cochrane from Oahu to Brownsville Texas the Ex Cochrane sank after the sea state generated a surging condition in which the following ship collided with the stern of the lead ship of the tow.

c. In November of 2002 one vessel of a tandem tow sunk en route from Richmond, California, to a shipbreaker in China. The second vessel required repairs to the sanitary waste overboards in the forward hold. It is suspected that the vessel was lost due to a similar failure of the sanitary waste overboard in the after hold. Hull conditions were excellent as the vessels were ex Dew-line early warning ships built with ice strengthened hulls.

d. In 1991 a vessel under tow from the James River to Brownsville Texas required voyage repairs to the hull to complete the tow to the breaking yard.

17. Weather in the North Atlantic and North East Atlantic has caused even ships in sound operating condition to founder and break up due to unanticipated engine casualty or due to a loss of ships power. In the event of a tow, this would require cutting away the tow until propulsion could be re-established to protect the towing vessel. Once the towing vessel has recovered it can begin maneuvers to recover the tow. In moderate sea states this is very difficult. In severe sea states or storms it can prove impossible and would put the lives of personnel at risk. In assigning a tow vessel, strong consideration should be given to the age of the tow vessel and its maintenance record with particular attention to underway history of machinery failures/loss of power etc.

18. Tandem tows are particularly problematic. A tandem tow in certain sea states, specifically those waves that are at the natural frequency of the tow system, will result in the tow rig surging and the two vessels under tow impacting one another. Additional factors are control of the tow depending on rig, and servicing the tow if a problem surfaces on one of the vessels. Additionally a tandem tow decreases speed of advance and correspondingly increases the time that the tow is exposed to changes in the weather.

19. Heavy seas provide another problem for either single or tandem tows - pounding, hogging, and sagging. Pounding is when the ships meet the seas head-on resulting in substantially increased loading on the forward pressure areas of the ship. Hogging is a condition resulting from bending of the ship as it crosses over a large wave. Sagging is the opposite bending condition where the center of the ship is in the wave trough. Working is a term which reflects bending and flexing of the ship as it passes through waves.

20. Normal ship repair and certification practice is to repair or replace any areas which exceed 25% deterioration. This is a requirement normal operating guidelines. Deterioration in excess of 25 % either to hull plating or to the reinforcing longitudinal stringers or transverse webs result in a survey recommendation for repair prior to tow or continued operation of a vessel under either US Navy standards or under USCG and American Bureau of Shipping (ABS) inspection standards. In the case of an insurance company, it provides the basis for declining insurer's approval of the vessel to be towed or operated until the condition is corrected. The structural decrease in strength may be locally as much as 90% due to thinning.

21. Under pounding conditions, reduced hull thickness will result in local hull failure, not just plate buckling. Additionally the working of the vessel into the seas causes corrosion scabs to break out. In some locations these scabs penetrate clear through the hull. Once removed these provide open

access for water intrusion into the ship. Once enough water is taken on the location causes continuous flooding with either loss of the ship or the need to scuttle the ship due to inability of the tug crew to board and accomplish damage control and repairs. In heavy seas, the condition may go unnoticed for a substantial period of time even with an excellent tow crew and experienced master.

22. Hogging conditions can result in structural failure most likely in the middle of the ship on the main deck due to structural thinning. The areas of highest failure probability are weld seams with accelerated corrosion rates. In the worst case the structural failure would progress until the ship breaks in half and sinks.

23. Sagging conditions can result in transverse structural failure as well. The most likely location is the middle one third of the ship along transverse plate welds having higher corrosion rates than the general hull. Again structural failure can progress until the ship breaks. In either condition it is likely to cause flooding and sinking.

24. Severe working conditions can cause rivet lap seams to fail when enough rivets have been structurally compromised to allow the seam to start separating. At this point the ship begins flooding and eventually sinking.

25. Flooding as a result of substantial storm damage or structural failure as a result of hogging, sagging, or working of the vessel is not something the tow vessel can do anything about. Tow vessels typically are not manned with sufficient personnel to accomplish underway damage control repairs. Repair of damage in an unpowered vessel with any significant sea state is a high-risk situation posing severe risk to personnel.

26. Even with the best track planning and weather forecasts, tows in the North Atlantic are of extreme concern. Voyage speed of advance (SOA) with a tow ranges from 3-5 knots. Even departing with a good forecast, weather in October and November can change significantly. The weather front systems move four to eight times faster than the tug and its tow- along track. At 3-5 knots, even with modern forecasting and satellite imagery, once the weather changes and the tow has passed Newfoundland en route to England there is nowhere to run from a general widespread fall/winter storm system. Voyage duration at a 3-5 knot SOA ranges from 30 to 45 days from the James River to the approach to the Dover Strait. For this duration of exposure, there is a high probability of having one or more significant storm events overtake the tow in progress. From mid-October to mid-November this becomes near certainty. Even Naval vessels have experienced problems with Atlantic weather having to turn into the storm to ride it out. A tandem tow of vessels known to have hull structures compromised by corrosion is not recommended.

27. Proper rigging of the tow is required to prevent damage to the tow wire. Improper rigging can lead to chaffing of the tow wire and other problems which would result in the tug losing the tow and having to re-rig the tow underway. In heavy weather this may not be possible.

28. Under no circumstances should normal tow inspection, insurance inspection, and USCG inspection be circumvented. If the standards for ship hulls to be certified for operation are waived by MARAD, the taxpayer is at risk for the cleanup cost in the event of a ship loss. The environment is at risk from the pollution caused by the sinking vessel from hydrocarbons, PCBs in cabling and transformers and lead-based paint systems used to preserve interior spaces of ships constructed from the 1940's to the mid-1960's.

29. In light of the preceding considerations, the towing of any of the thirteen ships described above in paragraph 15 from the James River to England in the Fall or Winter presents a serious likelihood of leaks or accidents that would result in the release of wastes, including PCBs, into the environment. This likelihood is significantly increased if the ships are towed in tandem.

30. The risk of leaks or other accidents would be reduced substantially if the thirteen ships described above in paragraph 15 were scrapped at a facility in the Chesapeake region. It is my understanding that such a facility is available, and that there are other sites in the vicinity that could also be used for this purpose. This option would minimize the risk of release of PCBs and other harmful materials into the environment.

I declare under penalty of perjury and under the laws of the State of California that the foregoing is true and correct.

Executed this _____ day of September 2003, Mt. Shasta, California.

Werner F. Hoyt, P.E.